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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,518	01/27/2004	Hideyuki Miyata	1614.1378	9958

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EXAMINER	
LEUNG, CHRISTINA Y	
ART UNIT	PAPER NUMBER
2613	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/764,518	MIYATA ET AL.	
	Examiner	Art Unit	
	Christina Y. Leung	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7-25-06; 7-25-06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 currently recites "wherein a wavelength of the second optical signal generated by the variable wavelength laser is fixed, and that the predetermined wavelength of the first optical signal extracted by the fixed wavelength filter is arbitrarily set." The claim is indefinite because it is unclear how the wavelength of "variable wavelength" laser is "fixed" while a wavelength of a "fixed wavelength" filter is "arbitrarily set."

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 5, 7-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egnell et al. (US 6,590,681 B1) in view of Sridhar (US 5,778,118 A).

Regarding claims 1, 5, and 7, Egnell et al. disclose an optical transmission apparatus with an optical add/drop function used in an optical wavelength multiplex network (Figures 3 and 4), comprising:

an optical branching coupler (such as drop coupler 17e) for dividing an input wavelength multiplexed optical signal into a wavelength multiplexed optical signal, which is called a passing signal, and another wavelength multiplexed optical signal, which is called a dropping signal;

a filter (BP filters 21 in Figure 3, or BP filters 37e in Figure 4) for extracting a first optical signal at a predetermined wavelength from the dropping signal that is branched by the optical branching coupler;

a fixed wavelength transmitter 13 for generating a second optical signal that is to be inserted;

a blocking filter (such as BB filters 31e) for blocking a third optical signal contained in the passing signal that is branched by the optical branching coupler, said third optical signal having a wavelength that is the same as the second optical signal that is to be inserted (column 6, lines 5-67; column 7, lines 1-18; and

an optical coupler (such as add coupler 23e) for coupling the passing signal that is not blocked by and passes the blocking filter, and the second optical signal that is to be inserted.

Regarding claims 1 and 5 in particular, Egnell et al. disclose fixed wavelength transmitters 13 wherein a wavelength of the second optical signal generated by the fixed wavelength transmitter is fixed, but Egnell et al. do not explicitly disclose that they comprise lasers. However, optical transmitters comprising lasers are commonly known in the optical communications art. Sridhar teaches an apparatus with an optical add/drop function (Figure 1) that is related to the one disclosed by Egnell et al., and Sridhar further teaches optical transmitters comprising lasers 81-84 (column 6, lines 56-67; column 7, lines 1-7).

Regarding claim 1 in particular, it would have been obvious to a person of ordinary skill in the art to use lasers as taught by Sridhar as the transmitter in the system disclosed by Egnell et al. in order to effectively output optical signals having particular wavelengths.

Regarding claims 1, 5, and 7, Egnell et al. also disclose filters 21 or 37e but do not specifically disclose that they are variable wavelength filters wherein the predetermined wavelength of the first optical signal extracted by the filter is arbitrarily set. However, Sridhar further teaches variable wavelength filters 63A-63D, wherein an extraction wavelength of filter is capable of being arbitrarily set, and which are used in combination with fixed wavelength transmitters 81-84 like those already disclosed by Egnell et al.

Regarding claim 7 in particular, Egnell et al. do not specifically disclose that the filter is one of an AOTF, a dielectric multilayer filter, an FGB type filter, and a Fabry-Perot type filter. However, various wavelength filters are known in the optical communications art, and Sridhar teach that filters 63A-63D may comprise FGB/Bragg grating type filters or Fabry-Perot type filters (column 5, lines 53-67; column 6, lines 1-37).

Regarding claims 1, 5, and 7, it would have been obvious to a person of ordinary skill in the art to use a variable wavelength filter comprising a FGB type filter or a Fabry-Perot type filter as suggested by Sridhar as the optical filter already disclosed by Egnell et al. in order to flexibly receive dropped signals having different wavelengths that may be arbitrarily set as desired in the communications network.

Regarding claim 8, Egnell et al. further disclose that the system includes a protection unit that comprises an optical coupler (such as coupler 23w) and an optical switch (such as switch 33w). Specifically, Egnell et al. disclose that one of the lines (for example, the "e" path as shown

in Figure 4) is a working line while the other line (for example, the "w" path) is a backup line used for protection switching (column 9, lines 37-53). When traffic is switched to the protection line, switches such as switch 33w are switched to direct traffic to the protection line, and the traffic is coupled into the protection line with couplers such as coupler 23w.

Regarding claim 9, Egnell et al. further disclose an optical wavelength multiplex network, comprising: the optical transmission apparatus as discussed above with regard to claim 1 and a double optical loop network that comprises a hub and two optical loops wherein the two loops are configured to transmit signals in opposite directions with respective to each other (Figure 1; column 2, lines 40-44; column 4, lines 16-49). Particularly, they disclose that one of the nodes may serve as a hub (column 11, lines 21-33).

Regarding claim 10, Egnell et al. disclose that the hub comprises an optical demultiplexer, an optical coupler, an optical switch, and an optical multiplexer. Since Egnell et al. disclose that one of the nodes in the network may serve as a hub, they disclose that a hub would comprise an optical demultiplexer such as BP filters 37e, an optical coupler such as coupler 17e, an optical switch such as switch 39e, and an optical multiplexer such as multiplexer 35e as shown in Figure 4 as part of a node.

Likewise, regarding claims 11 and 13, Egnell et al. disclose that a hub comprises an optical filter such as BB filters 31e as shown in Figure 4 as part of a node, and/or a protection unit that comprises an optical coupler such as coupler 23w and an optical switch such as switch 33w. As similarly discussed above with regard to claim 8, Egnell et al. disclose that one of the lines (for example, the "e" path as shown in Figure 4) is a working line while the other line (for example, the "w" path) is a backup line used for protection switching (column 9, lines 37-53).

When traffic is switched to the protection line, switches such as switch 33w are switched to direct traffic to the protection line, and the traffic is coupled into the protection line with couplers such as coupler 23w.

5. Claims 3, 6, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egnell et al. in view of Asahi (US 6,195,186 B1).

Regarding claim 3, Egnell et al. disclose an optical transmission apparatus with an optical add/drop function used in an optical wavelength multiplex network (Figures 3 and 4), comprising:

an optical branching coupler (such as drop coupler 17e) for dividing an input wavelength multiplexed optical signal into a wavelength multiplexed optical signal, which is called a passing signal, and another wavelength multiplexed optical signal, which is called a dropping signal;

a fixed wavelength filter (BP filters 21 in Figure 3, or BP filters 37e in Figure 4) for extracting a first optical signal at a predetermined wavelength from the dropping signal that is branched by the optical branching coupler;

a transmitter 13 for generating a second optical signal that is to be inserted;

a blocking filter (such as BB filters 31e) for blocking a third optical signal contained in the passing signal that is branched by the optical branching coupler, said third optical signal having a wavelength that is the same as the second optical signal that is to be inserted (column 6, lines 5-67; column 7, lines 1-18; and

an optical coupler (such as add coupler 23e) for coupling the passing signal that is not blocked by and passes the blocking filter, and the second optical signal that is to be inserted.

Egnell et al. disclose transmitters 13 but do not explicitly disclose that they comprise variable wavelength lasers. However, Asahi teaches an apparatus with an optical add/drop function (Figure 1) that is related to the one disclosed by Egnell et al., and Asahi further teaches optical transmitters 301 comprising variable wavelength lasers that are used in combination with fixed wavelength receivers 302 like those already disclosed by Egnell et al. (column 3, lines 32-42 and lines 59-64; column 4, lines 63-67).

Regarding claim 3, it would have been obvious to a person of ordinary skill in the art to specifically include a variable wavelength laser as taught by Asahi as the optical transmitter in the system already disclosed by Egnell et al. in order to flexibly transmit signals having different wavelengths as desired in the communications network

Regarding claim 6, as well as the claim may be understood with respect to 35 U.S.C. 112 discussed above, Egnell et al. already disclose that a wavelength of the second optical signal generated by the transmitter is fixed, and that the predetermined wavelength of the first optical signal extracted by the fixed wavelength filter is "arbitrarily set" in the sense that the fixed filters may be set arbitrarily when the filters are initially selected and built into the system.

However, as well as claim 6 may be understood, Examiner also respectfully notes that the system taught by Egnell et al. in view of Asahi as discussed above with regard to claim 3 includes variable wavelength lasers as taught by Asahi, wherein a wavelength of the variable wavelength laser is capable of being arbitrarily set according to users' needs. Given the indefiniteness of claim 6, however, Examiner also respectfully adds that even the "variable wavelength" laser taught by Asahi may have a "fixed" wavelength also, in the sense that the wavelength is fixed for a period of time once the laser is tuned.

Regarding claim 14, Egnell et al. further disclose an optical wavelength multiplex network, comprising: the optical transmission apparatus as discussed above with regard to claim 3 and a double optical loop network that comprises a hub and two optical loops wherein the two loops are configured to transmit signals in opposite directions with respective to each other (Figure 1; column 2, lines 40-44; column 4, lines 16-49). Particularly, they disclose that one of the nodes may serve as a hub (column 11, lines 21-33).

Regarding claim 15, Egnell et al. disclose that a hub comprises a protection unit that comprises an optical coupler such as coupler 23w and an optical switch such as switch 33w. Egnell et al. disclose that one of the lines (for example, the "e" path as shown in Figure 4) is a working line while the other line (for example, the "w" path) is a backup line used for protection switching (column 9, lines 37-53). When traffic is switched to the protection line, switches such as switch 33w are switched to direct traffic to the protection line, and the traffic is coupled into the protection line with couplers such as coupler 23w.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Egnell et al. in view of Sridhar as applied to claim 1 above, and further in view of Nagel et al. (US 5,481,399 A).

Regarding claim 2, Egnell et al. in view of Sridhar describe a system as discussed above with regard to claim 1, including a blocking filter and an optical coupler, but they do not specifically disclose that the blocking filter and optical coupler elements comprise a rejection/add filter.

However, Nagel et al. teach a system that is related to the one described by Egnell et al. in view of Sridhar including an apparatus with a blocking/filtering function and an optical

coupling function for adding and dropping wavelengths in an optical communication system (Figures 2 and 2A-C). Nagel et al. further teach a blocking filter and an optical coupler comprise a rejection/add filter that blocks an optical signal and inserts another optical signal (Figures 2B and 2C; column 4, lines 4-44).

Regarding claim 2, it would have been obvious to a person of ordinary skill in the art to use a blocking filter and optical coupler comprising a rejection/add filter that blocks the third optical signal and inserts the second optical signal as taught by Nagel et al. as the blocking filter and coupler in the system described by Egnell et al. in view of Sridhar in order to manufacture the two elements more efficiently as one element and also provide an additional filtering of the added channel to remove noise from the added channel.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Egnell et al. in view of Asahi as applied to claim 3 above, and further in view of Nagel et al.

Regarding claim 4, Egnell et al. in view of Asahi describe a system as discussed above with regard to claim 3, including a blocking filter and an optical coupler, but they do not specifically disclose that the blocking filter and optical coupler elements comprise a rejection/add filter.

However, Nagel et al. teach a system that is related to the one described by Egnell et al. in view of Asahi including an apparatus with a blocking/filtering function and an optical coupling function for adding and dropping wavelengths in an optical communication system (Figures 2 and 2A-C). Nagel et al. further teach a blocking filter and an optical coupler comprise a rejection/add filter that blocks an optical signal and inserts another optical signal (Figures 2B and 2C; column 4, lines 4-44).

Regarding claim 4, it would have been obvious to a person of ordinary skill in the art to use a blocking filter and optical coupler comprising a rejection/add filter that blocks the third optical signal and inserts the second optical signal as taught by Nagel et al. as the blocking filter and coupler in the system described by Egnell et al. in view of Asahi in order to manufacture the two elements more efficiently as one element and also provide an additional filtering of the added channel to remove noise from the added channel.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Egnell et al. in view of Sridhar as applied to claims 1 and 9 above, and further in view of Adams et al. (EP 1063803 A1).

Regarding claim 12, Egnell et al. in view of Sridhar describe a system as discussed above with regard to claims 1 and 9 above including a hub. Egnell et al. further disclose that the hub comprises an optical demultiplexer such as BP filters 37e and an optical multiplexer such as multiplexer 35e as shown in Figure 4 as part of a node, but they do not specifically further disclose that the hub may comprise a MEMS.

However, Adams et al. teach a system that is related to the one described by Egnell et al. in view of Sridhar including an apparatus with an add/drop function in an optical network further including a ring structure and a hub (Figures 1 and 6). Adams et al. further teach that the hub may include a MEMS 650 (Figure 6; column 9, lines 38-58; column 10, lines 1-50).

It would have been obvious to a person of ordinary skill in the art to include a MEMS such as suggested by Adams et al. in the system described by Egnell et al. in view of Sridhar in order to flexibly direct certain wavelengths as desired (Adams et al., column 10, liens 18-38). Also, Examiner respectfully notes that Egnell et al. already disclose that the hub may comprise a

switch such as switch 39e or 33w as shown in Figure 4 as part of a node, and Adams et al. also simply teach that MEMS are known types of optical switches. It also would have been obvious to a person of ordinary skill in the art to use a MEMS as suggested by Adams et al. as the switch already disclosed in the system described by Egnell et al. in view of Sridhar as a way implement the switch already disclosed by Egnell et al. that is advantageously small, low cost, and low power compared to other types of optical switches (Adams et al., column 10, lines 44-50).

Response to Arguments

9. Applicants' arguments filed 18 October 2006 with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

However, in general response to Applicants' comments on page 6 of their response regarding "a relationship between a variable wavelength filter and a fixed wavelength laser," Examiner respectfully notes that Sridhar teaches variable wavelength filters 63A-63D that are used in combination with fixed wavelength transmitters 81-84 (like those already disclosed by Egnell et al., with respect to the combination of Egnell et al. in view of Sridhar that is discussed in further detail above).

Furthermore, in general response to Applicants' comments on page 7 of their response regarding "a relationship between a fixed wavelength filter and a variable wavelength laser," Examiner respectfully notes that Asahi further teaches optical transmitters 301 comprising variable wavelength lasers that are used in combination with fixed wavelength receivers 302 (like those already disclosed by Egnell et al., with respect to the combination of Egenll et al. in view of Asahi that is discussed in further detail above).

Conclusion

10. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CHRISTINA LEUNG
PRIMARY EXAMINER